

MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2320
Gaithersburg, Maryland 20899-2320

SRM Number: 84k
MSDS Number: 84k
SRM Name: Potassium Hydrogen
Phthalate (Acidimetric Primary
Standard)
Date of Issue: 06 January 2005

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Description: Standard Reference Material (SRM) 84k is intended for use as a primary acidimetric standard. It consists of highly purified potassium hydrogen phthalate, $\text{KHC}_8\text{H}_4\text{O}_4$ (KHP) and is supplied as crystalline material in a 60 g unit.

Substance: Potassium Hydrogen Phthalate (Acidimetric Primary Standard)

Other Designations: Potassium Hydrogen Phthalate [potassium biphthalate; potassium acid phthalate; acid k; acid potassium phthalate; phthalic acid potassium salt;; buffer powder ph 4 (beckman); monopotassium phthalate; hydrogen potassium phthalate; monopotassium salt monopotassium 1,2-benzenedicarboxylate; phthalic acid; 1,2 benzenedicarboxy-lic acid monopotassium salt]

2. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Component	CAS Registry	EINECS	Concentration (%)
Potassium Hydrogen Phthalate	877-24-7	212-889-4	100

Index, R/S Phrases (EC): Xi; R36, R37, R38; S2, S24, S25, S26, S46
See "Section 15".

3. HAZARD IDENTIFICATION

NFPA Ratings (Scale 0–4): Health = 2 Fire = 1 Reactivity = 0

Major Health Hazards: Respiratory tract irritation, skin irritation, eye irritation.

Physical Hazards: Dust/air mixtures may ignite or explode.

Potential Health Effects:

Inhalation: Respiratory tract irritation.

Skin absorption: Irritation.

Eye contact: Irritation.

Ingestion: Diarrhea, nausea, vomiting.

Carcinogen Status:

National Toxicology Program (NTP) Report on Carcinogens
International Agency for Research on Cancer (IARC) Monographs
Occupational Safety and Health Administration (OSHA)

Yes	No
_____	<u>X</u>
_____	<u>X</u>
_____	<u>X</u>

4. FIRST AID MEASURES

Skin Contact: Rinse affected area with soap and water for at least 15 minutes while removing contaminated clothing. Obtain medical assistance immediately.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance immediately.

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration by qualified personnel. Get immediate medical attention.

Ingestion: Contact local poison control center or physician immediately. If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Slight fire hazard. Dust/air mixtures are explosive. Avoid sources of ignition.

Extinguishing Media: Regular dry chemical, carbon dioxide, regular foam.

Fire Procedures: Move container from fire area if it can be done without risk. Use extinguishing agents appropriate for surrounding fire. Keep unnecessary people away, isolate hazard area and deny entry. Avoid inhalation of combustion by-products.

Flash Point (°C): Combustible **Autoignition (°C):** N/A

Flammability Limits in Air (Volume %): **UPPER:** N/A

LOWER: N/A

Flammability Class (OSHA): Not classified.

6. ACCIDENTAL RELEASE MEASURES

Occupational Release: Keep unnecessary people out of area.

Environmental Precautions: See "Section 13".

Clean-up Methods: Collect spilled material in appropriate container for proper disposal.

7. HANDLING AND STORAGE

Storage: This SRM should be stored in its original bottle at temperatures between approximately 20 °C and 25 °C. It must be tightly recapped after use and protected from moisture and light. Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances.

Precautions for Safe Handling: See "Section 8".

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Hazardous Component	Concentration (%)	Exposure Limits and Toxicity Data
Potassium Hydrogen Phthalate	100	No TLV established

Engineering: An eye wash station and drench shower should be readily available near the handling and use areas.

Ventilation: Local exhaust ventilation system.

Respirator: Under conditions of frequent use or heavy exposure, if engineering controls are not feasible, respirator protection is required; see 42CFR84 for selection and use.

Eye Protection: Wear safety goggles. **DO NOT** wear contact lenses in the laboratory.

Personal Protection: Wear safety goggles and chemically resistant gloves and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Potassium Hydrogen Phthalate	
Appearance and Odor: colorless crystals, odorless	Specific Gravity (water = 1): 1.6
Molecular Formula: KHC ₈ H ₄ O ₄	pH: 4 (0.05 M solution)
Relative Molecular Mass: 204.2	Water Solubility (%): 10
Melting Point (°C): decomposes	Solvent Solubility: slightly soluble in alcohol

10. STABILITY AND REACTIVITY

Stability: X **Stable** **Unstable**

Stable at normal temperature and pressure.

Conditions to Avoid: Avoid heat, flames, sparks and other sources of ignition. Keep separate from incompatible materials.

Incompatibility (Materials to Avoid): Oxidizing materials.

Hazardous Decomposition or Byproducts: Thermal decomposition produces oxides of carbon. Contact with strong oxidizers presents a fire and explosion hazard.

Hazardous Polymerization: **Will Occur** X **Will Not Occur**

11. TOXICOLOGICAL INFORMATION

Route of Entry: X **Inhalation:** X **Skin** X **Ingestion**

Toxicity Data	
Oral, Rat: LD ₅₀	3.2 g/kg

Health Hazards (Acute)

Inhalation: May cause irritation of the mucous membranes.

Ingestion: May include nausea, vomiting, and diarrhea.

Skin Contact: May cause irritation.

Eye Contact: May cause irritation, redness, and pain.

Medical Conditions Generally Aggravated by Exposure: Not applicable.

12. ECOLOGICAL INFORMATION

Algal Toxicity: 1 g/L (96 yr)

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with federal, state and local regulations. Keep out of water supplies and sewers.

14. TRANSPORTATION INFORMATION

DOT Registry: No classification assigned

15. REGULATORY INFORMATION

U.S. REGULATIONS

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):

ACUTE: Yes
CHRONIC: No
FIRE: No
REACTIVE: No
SUDDEN RELEASE: No

TSCA: Listed on inventory.

STATE REGULATIONS

California Proposition 65: Not regulated.

CANADIAN REGULATIONS

WHMIS Classification: Not determined.

EU CLASSIFICATION

Xi Irritant

EU RISK AND SAFETY PHRASES

R36 Irritating to eyes.
R37 Irritating to respiratory system.
R38 Irritating to skin.
S2 Keep out of reach of children.
S24 Avoid contact with skin.
S25 Avoid contact with eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S46 If swallowed, seek medical advice immediately and show this container or label.

16. OTHER INFORMATION

Sources: MDL Information Systems, Inc., MSDS *Potassium Hydrogen Phthalate*, 19 March 2003.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use as a guide in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data in the MSDS. The certified values for this material are given in the NIST Certificate of Analysis.